

### FLORENCE COPPER INC.

1575 W. Hunt Highway, Florence, Arizona 85132 USA

florencecopper.com

December 23, 2020

David Albright Manager, Groundwater Protection Section USEPA Region 9 (WTR-4-2) 75 Hawthorne Street San Francisco, CA 94105

Re: Transmittal of Mechanical Integrity Testing Summary 2020

Production Test Facility Injection Wells: I-01, I-02, I-03, and I-04

Florence Copper Project, Florence Arizona

Dear Mr. Albright:

Florence Copper Inc. herewith transmits the enclosed Technical Memorandum, *Mechanical Integrity Testing Summary, Production Test Facility Injection Wells: I-01, I-02, I-03, and I-04, Florence Copper Project, Florence Arizona.* 

Please contact me at 520-316-3710 if you require any additional information.

Sincerely,

Florence Copper Inc.

Brent Berg

General Manager

cc: Nancy Rumrill, U.S. Environmental Protection Agency

Maribeth Greenslade, ADEQ

Enclosure







#### **TECHNICAL MEMORANDUM**

18 December 2020 File No. 134160-013

TO: Florence Copper Inc.

Ian Ream, Senior Hydrogeologist

FROM: Haley & Aldrich, Inc.

Sarah Cooper, P.E.

SUBJECT: Mechanical Integrity Testing Summary

Production Test Facility Injection Wells: I-01, I-02, I-03, and I-04

Florence Copper Inc., Florence, Arizona

### Introduction

This Technical Memorandum presents the results of mechanical integrity testing of Production Test Facility (PTF) injection wells I-01, I-02, I-03, and I-04 during November and December 2020 for Florence Copper Inc. (Florence Copper) in Florence, Arizona.

Injection wells I-01, I-02, I-03, and I-04 are located within the Underground Injection Control (UIC) Permitted Area of Review for UIC Permit R9UIC-AZ3-FY11-1 and were completed as Class III injection wells for the PTF (Figure 1).

Florence Copper contracted Verdad Group, LLC to perform the mechanical integrity testing, and a Haley & Aldrich, Inc. field geologist provided oversight for each test.

### **Demonstration of Mechanical Integrity**

Florence Copper conducted Part I mechanical integrity testing at the four injection wells by means of a Standard Annular Pressure Test (SAPT) in accordance with Part II.E.3.a.i.A of the UIC Permit. The mechanical integrity tests were performed on the dates listed below:

Well ID	Mechanical Integrity Test Date
I-01	11/18/2020
I-02	11/24/2020
I-03	12/03/2020
I-04	12/09/2020

Florence Copper Inc. 18 December 2020 Page 2

Completed SAPT forms are included in Appendix A. As-built diagrams are provided in Appendix B.

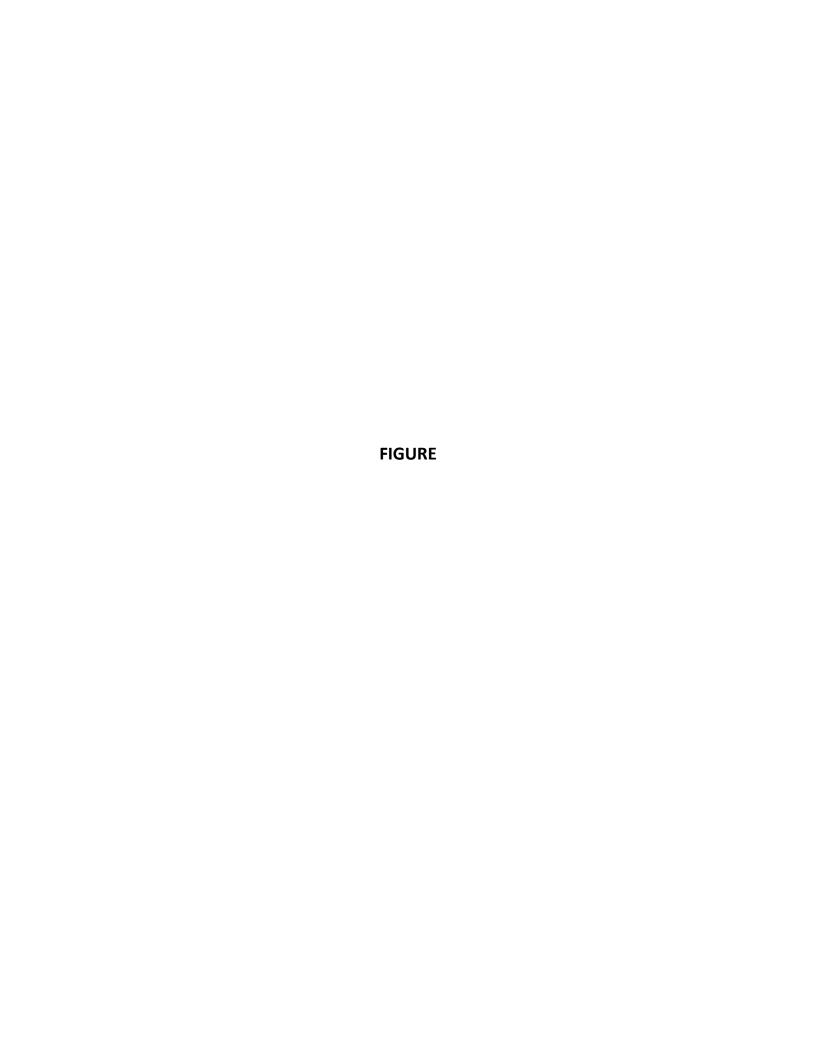
### **Results**

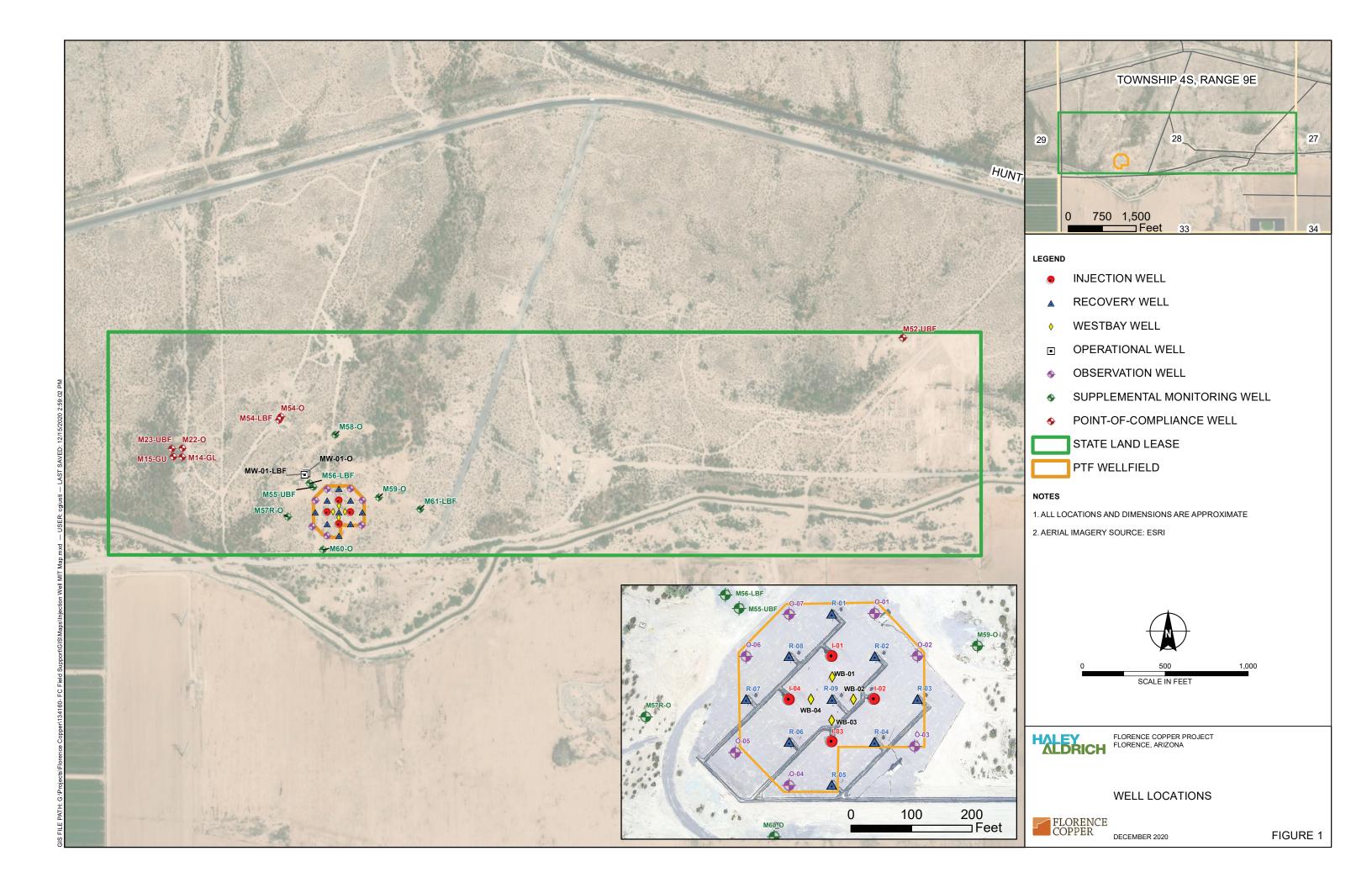
Each of the four injection wells passed mechanical integrity testing. Results of the tests are presented in the completed SAPT forms (Appendix A).

### **Enclosures:**

Figure 1 – Well Locations Appendix A – Completed Standard Annular Pressure Test Forms Appendix B – Injection Well As-Built Diagrams







## **APPENDIX A**

**Completed Standard Annular Pressure Test Forms** 

### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY STANDARD ANNULAR PRESSURE TEST

Operator_Florence Copp	per. Inc			St	tate Permit No. P-101704		
Address_1575 West Hunt Highway				USEPA Permit No. R9UIC-AZ3-FY11-1			
Florence, AZ 5	132			D	ate of Test11/18/20		
Well Name I-01				W	Vell Type_Env-Injection-Class	III	
LOCATION INFOR	RMATION SW	/ Q	uarter of	the NE	Quarter of the SW	Quarter	
of Section 28	; Range 9E		_; Towns	ship 48	; County Pinal	;	
Company Represent	ative lan Ream		; F	ield Inspec	ctor Collin Giusti	;	
Type of Pressure Ga	uge Transducer	inch face;	300	psi ful	ll scale; 0.001	psi increments;	
New Gauge? Yes □	No   If no. date o	f calibration	11/1/17	Calibrati	on certification submitte	d? Yes □ No □	
TEST RESULTS					ear or annual test on time		
Readings must be tal minimum of 30 minumum					st for TA'd wells on time		
minutes for Class I v		and v wens	s and ou	2-year tes		k? Yes □ No ⊠	
For Class II wells, an	-						
psig. For Class I we greater of 300 psig o	_				Newly permitted wel	I? Yes □ No 凶	
injection pressure.	1 100 psi above maz	amum pem	intica				
Original chart record	lings must be submi	tted with th	is form.				
•	Pressure (i	n psig)					
Time	Annulus	Tubing	5	Casi	ing size 5-inch nominal		
15:52	165.850	same	The sale		ing size AQ		
16:02 16:12	164.218 162.912	same			ker type inflatable packer ker set @ 3.91 FT (Top), 495	84 FT (Bottom)	
16:22	161.628	same			of Permitted Injection Z		
		Legisla.	11,711		acker 100 ft or less above		
				Inje	ction Zone ? Yes ■ No		
		g d'acti			ot, please submit a justifi		
		BURNES !			d return (gal.) 0.67		
				Comments:			
Test Pressures:	Max. Allowable P	ressure Cha	_		ssure x 0.03 4.975 ressure change 4.222	psi	
Test Passed ■	Test Failed		103	t i cilod i i	essure change	psi	
If failed test, well mu	ist be shut in, no ini	ection can o	occur, and	d USEPA n	nust be contacted within	24 hours.	
	1. <del></del>				ation received before inje		
recommence.							
I certify under penalt	y of law that this do	cument and	l all attac	hments are	e, to the best of my know	ledge and	
belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false							
information, including	g the possibility of	fine and im	prisonme	nt for know	wing violations. (See 40	CFR 144.32(d))	
Ian Ream		A	5			2.23.2020	
Printed Name of Con	npany Representativ	e Signati	ire of Co	mpany Rep	presentative	Date	

# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY STANDARD ANNULAR PRESSURE TEST

Operator Florence Copper, Inc.			State Permit No. P-101704				
Address 1575 West Hunt Highay				USEPA Permit No. R9UIC-AZ3-FY11-1			
Florence, AZ 85132			Date of Test 11/24/2020				
Well Name I-02				Well Type Env-Injection-Class III			
LOCATION INFOR	MATION sv	V Quarter	of the NE	Quarter of the SW	Quarter		
of Section 28	; Range 9E	; To	wnship 48	; County Pinal	;		
Company Representative lan Ream ; Field Inspector Collin Giusti ;							
Type of Pressure Gauge Transducer inch face; 300 psi full scale; .001 psi increments;							
New Gauge? Yes □	No 🗵 If no, date of	of calibration 11/1/2	Calibra	ation certification submitted?	Yes 🗆 No 🗈		
TEST RESULTS	van at laagt avanv 1	O minutes for a	5	-year or annual test on time?	Yes   ■ No   □		
Readings must be tak minimum of 30 minu			2-year test for TA'd wells on time? Yes ■ No ■				
minutes for Class I w				After rework? Yes □ No			
For Class II wells, an psig. For Class I wel			Y	Newly permitted well?	Yes □ No ☒		
greater of 300 psig or	-			riowij permitted wen.	100 = 110 =		
injection pressure.							
Original chart record	ings must be subm	itted with this for	n.				
•	Pressure (	in nsig)					
Time	Annulus	Tubing	C	asing size 5-Inch nominal	in the live		
14:24	167.738	same	T	ubing size AQ			
14:34	168.205	same		acker type inflatable packer			
14:44	168.581	same		acker set @ 4.08 FT (Top), 496.01			
14:54	168.980	same		op of Permitted Injection Zon packer 100 ft or less above t			
					•		
Service of the Control of the Contro				njection Zone? Yes 🗵 No 🛘			
	LISSE NESS			`not, please submit a justifica luid return (gal.) <u>1.24</u>	ition.		
	M. H. 2002. I. ODAK		Commen				
		dissella attanta an ancient					
Test Pressures:	Max. Allowable l	Pressure Change:		ressure x 0.03 5.032 Pressure change -1.242	psi psi		
Test Passed	Test Failed						
				A must be contacted within 24 ization received before injection			
I certify under penalty of law that this document and all attachments are, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (See 40 CFR 144.32(d))							
			/	i i	7-23-2020		
lan Ream		W/L		- /	C-L7 6060		

Printed Name of Company Representative

Signature of Company Representative

# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY STANDARD ANNULAR PRESSURE TEST

Operator Florence Copp	per. Inc.		State Permit No. P-101704			
Address 1575 West Hunt Highay			USEPA Permit No. R9UIC-AZ3-FY11-1			
Florence, AZ 85132						
	7132	AND THE PROPERTY OF THE PARTY O	Date of Test 12/03/20			
Well Name 1-03			Well Type Env-Injection-Class III			
LOCATION INFOR	LOCATION INFORMATION Sw Quarter of the NE Quarter of the Sw Quarter					
of Section 28	; Range 9E	; Town	ship 48; County Pinal;			
Company Representative Ian Ream ; Field Inspector Collin Giusti ;						
Type of Pressure Ga	Transducer Transducer	inch face; 300	psi full scale; .001 psi increments;			
	No 🗵 If no, date	of calibration 11/1/2017	Calibration certification submitted? Yes 🛘 No 🖪			
TEST RESULTS	l	0	5-year or annual test on time? Yes 🗵 No 🛚			
Readings must be tall minimum of 30 minimum	The second secon	I and V wells and 60	2-year test for TA'd wells on time? Yes ■ No ■			
minutes for Class I v	wells.		After rework? Yes □ No □			
For Class II wells, an psig. For Class I we			Newly permitted well? Yes □ No □			
greater of 300 psig o	-		Trewij permitted went. Tes 🗷 176 🖺			
injection pressure.	12					
Original chart record	lings must be subm	nitted with this form.				
•	Pressure	(in psig)				
Time	Annulus	Tubing	Casing size 5-Inch nominal			
11:14 11:24	130.369 129.743	same	Tubing size AQ			
11:34	129.343	same	Packer type inflatable packer  Packer set (a) 4.08 FT (Top), 496.01 (Bottom)			
11:44	129.783	same	Top of Permitted Injection Zone 418			
			Is packer 100 ft or less above top of			
			Injection Zone ? Yes ☑ No ☐			
		RESERVATE SERVICES	If not, please submit a justification.			
	E THE THE		Fluid return (gal.) 0.70			
	THE STREET		Comments:			
Test Pressures:	May Allowable	Draccura Changa: Ini	tial test pressure x 0.03 3.911 psi			
rest ressures.	Max. Allowable	_	tial test pressure x 0.03 3.911 psi st Period Pressure change 0.586 psi			
Test Passed ■	Test Failed					
If failed test, well my	ust he shut in no in	ication can coour an	d LISEDA must be contested within 24 hours			
			d USEPA must be contacted within 24 hours. en authorization received before injection can			
Loomify and an accept	try of love that this d	la avenant and all attack	shows at the heat of my lenguiled as and			
I certify under penalty of law that this document and all attachments are, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (See 40 CFR 144.32(d))						
morani, morani	-D and bossioning of		(300 10 011(111132(d))			
ALK STRUCK		1	40 00 143 0			

Printed Name of Company Representative Signature of Company Representative

# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY STANDARD ANNULAR PRESSURE TEST

Operator Florence Copper, Inc.			State Permit No. P-101704				
Address 1575 West Hunt Highay		USEPA Permit No. R9UIC-AZ3-FY11-1					
Florence, AZ 8513	32		Ι	Date of Te	est 12/09/20		
Well Name 1-04			7	Well Type	Env-Injection-Class III		
LOCATION INFORMATION SW Quarter			the NE	Qu	arter of the SW	Quarter	
of Section 28	of Section 28; Range 9E; Township 4S; County Pinal;						
Company Representative Ian Ream ; Field Inspector Collin Giusti ;							
Type of Pressure Gauge inch face; 300 psi full scale; .001 psi increments;							
New Gauge? Yes □ N	No 🗵 If no, date of	f calibration 11/1/2017	Calibrat	tion certifi	ication submitted?	Yes □ No 🗵	
TEST RESULTS Readings must be take	an of least every 10	minutes for a	5-5	year or an	nual test on time?	Yes 🗷 No 🗖	
minimum of 30 minut	•		2-year to	est for TA	d'd wells on time?	Yes ■ No 🗵	
minutes for Class I wells.			1	Yes ■ No 🗵			
For Class II wells, and psig. For Class I well				Newl	y permitted well?	Yes □ No 🗵	
greater of 300 psig or 100 psi above maximum permitted					-		
injection pressure. Original chart recording	ngs must be submit	ted with this form					
·	ngs must be submit	acc with this form.		***************************************	, , , , , , , , , , , , , , , , , , ,		
T.'	Pressure (in			,	E look naminal		
Time 11:05	Annulus 160.095	Tubing same		sing size <u>s</u> bing size	5-Inch nominal AQ		
11:15	159.710	same		_	inflatable packer		
11:25	159.053	same		$\sim$	3.84 FT (Top), 495.77		
11:35	157.734	same			itted Injection Zon  Oft or less above to		
		The second of the second of			ne? Yes ☑ No 🛘	ор от	
					submit a justificat	tion.	
			Flu	Fluid return (gal.) 0.78			
		-	Comments	S:			
Test Pressures:	Max. Allowable Pressure Change: Initial test pressure x 0.03 4.802 psi  Test Period Pressure change 2.361 psi						
Test Passed	Test Failed						
If failed test, well must be shut in, no injection can occur, and USEPA must be contacted within 24 hours. Corrective action needs to occur, the well retested, and written authorization received before injection can recommence.							
I certify under penalty of law that this document and all attachments are, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (See 40 CFR 144.32(d))							

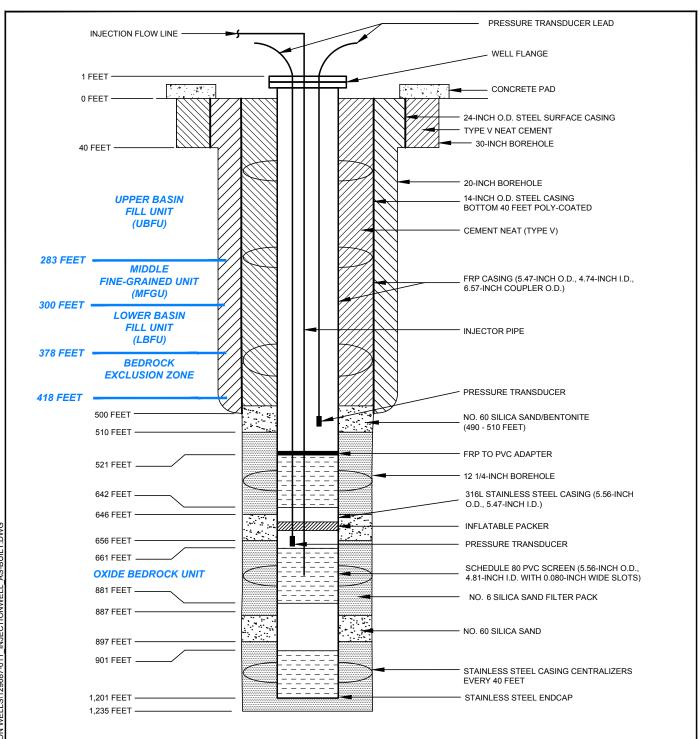
Printed Name of Company Representative Signature of Company Representative

Ian Ream

12.23.2020

## **APPENDIX B**

Injection Well As-Built Diagrams



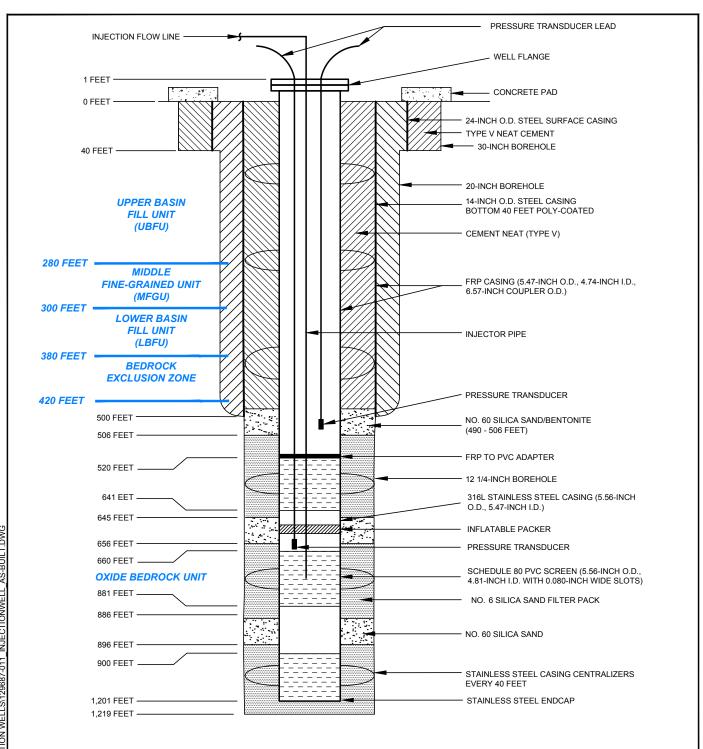
- 1. WELL REGISTRATION NO.: 55-227963
- 2. CADASTRAL LOCATION: D(4-9) 28 CAC
- 3. MEASURING POINT ELEVATION: 1482.67 FEET AMSL
- 4. I.D. = INSIDE DIAMETER
- 5. O.D. = OUTSIDE DIAMETER
- 6. PVC = POLYVINYL CHLORIDE
- 7. FRP = FIBERGLASS REINFORCED PLASTIC
- 8. SOUNDING TUBE INSTALLED TO ~500 FEET



PRODUCTION TEST FACILITY FLORENCE COPPER, INC. FLORENCE, ARIZONA

INJECTION WELL I-01 AS-BUILT DIAGRAM





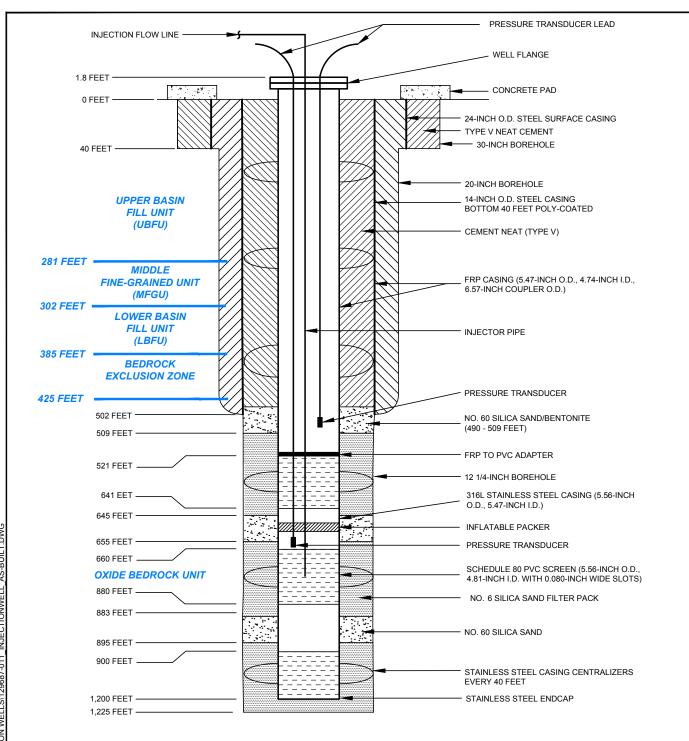
- 1. WELL REGISTRATION NO.: 55-227964
- 2. CADASTRAL LOCATION: D(4-9) 28 CAC
- 3. MEASURING POINT ELEVATION: 1482.61 FEET AMSL
- 4. I.D. = INSIDE DIAMETER
- 5. O.D. = OUTSIDE DIAMETER
- 6. PVC = POLYVINYL CHLORIDE
- 7. FRP = FIBERGLASS REINFORCED PLASTIC
- 8. SOUNDING TUBE INSTALLED TO ~500 FEET



PRODUCTION TEST FACILITY FLORENCE COPPER, INC. FLORENCE, ARIZONA

INJECTION WELL I-02 AS-BUILT DIAGRAM





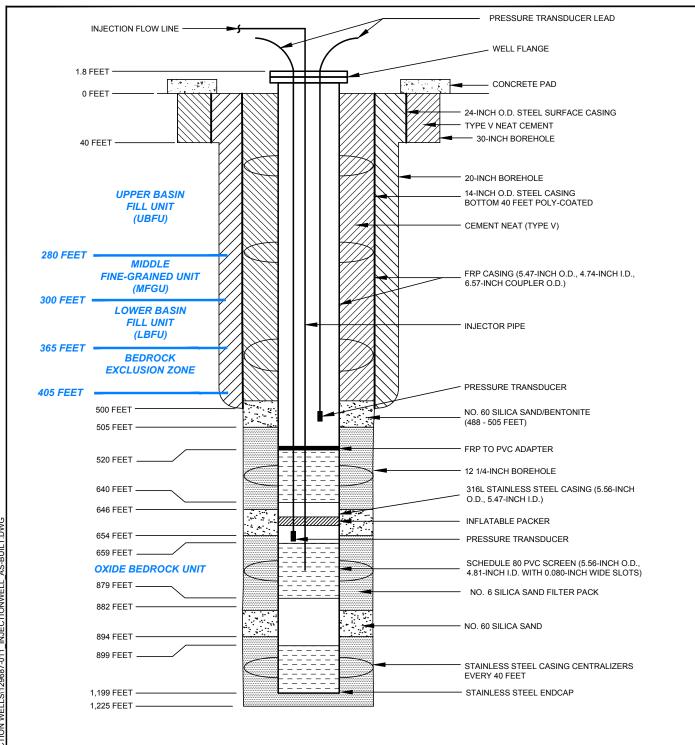
- 1. WELL REGISTRATION NO.: 55-227965
- 2. CADASTRAL LOCATION: D(4-9) 28 CAC
- 3. MEASURING POINT ELEVATION: 1480.71 FEET AMSL
- 4. I.D. = INSIDE DIAMETER
- 5. O.D. = OUTSIDE DIAMETER
- 6. PVC = POLYVINYL CHLORIDE
- 7. FRP = FIBERGLASS REINFORCED PLASTIC
- 8. SOUNDING TUBE INSTALLED TO ~500 FEET



PRODUCTION TEST FACILITY FLORENCE COPPER, INC. FLORENCE, ARIZONA

I-03 INJECTION WELL AS-BUILT DIAGRAM





- 1. WELL REGISTRATION NO.: 55-227966
- 2. CADASTRAL LOCATION: D(4-9) 28 CBD
- 3. MEASURING POINT ELEVATION: 1482.16 FEET AMSL
- 4. I.D. = INSIDE DIAMETER
- 5. O.D. = OUTSIDE DIAMETER
- 6. PVC = POLYVINYL CHLORIDE
- 7. FRP = FIBERGLASS REINFORCED PLASTIC
- 8. SOUNDING TUBE INSTALLED TO ~500 FEET



PRODUCTION TEST FACILITY FLORENCE COPPER, INC. FLORENCE, ARIZONA

I-04 INJECTION WELL AS-BUILT DIAGRAM

